

REMARKS

Claims in the case are 23-28 and 30-46, upon entry of this amendment. No claims have been amended, no claims have been cancelled, and no claims have been added herein.

Enclosed herewith is an appendix, which includes replacements for Figures 1 and 1a-1h (now 2-9).

The previously submitted drawing corrections and additions stand disapproved in the Office Action of 11 August 2003. Disapproval of the drawings is respectfully traversed with regard to the replacement drawings included herewith in the appendix and the following remarks.

Present Figure 1 has been modified such that all of the reference characters are oriented in the same direction, thus precluding the need for a viewer to rotate the drawing sheet.

Figures 1a-1h have been renumbered in consecutive Arabic numerals as Figures 2 through 9. The Brief Description of the Drawings at page 2, between lines 7 and 9 has been accordingly amended herein.

The sectional lines of Figure 1 have been renumbered to correspond to the view number of the sectional view. For example, "A-A" has been replaced with --II-II--, "B-B" has been replaced with --III-III--, etc. The Brief Description of the Drawings at page 2, between lines 7 and 9 has been accordingly amended herein.

In light of the amendments herein and the preceding remarks, the drawings are deemed to meet the requirements of the Office. Reconsideration and withdrawal of this rejection is respectfully required.

The specification stands objected to. This objection is respectfully traversed with regard to the amendments herein and the following remarks.

The recitation "The single figure" at page 3, line 15 of the specification has been replaced with --Figure 1-- by amendment herein.

The recitation "(not shown)" at page 3, line 19 of the specification has been replaced with --(30, 33)-- by amendment herein.

At page 3, line 24 of the specification, the recitation "the figure" has been replaced with --Figure 1-- by amendment herein.

The citation "first housing part 2" at page 3, line 23 of the specification has been replaced with "first housing part 1" by amendment herein.

Applicants contend that use of the term "left", with reference to Figure 1, at page 3, line 24 of the specification, is appropriate. In light of the common orientation of reference characters in Figure 1, the arrow at the end (right end) of the apparatus, and the location of the designation "Fig. 1," a person viewing Figure 1 would do so in such a way that: (i) housing part 1 would be on the left side of the page; and (ii) housing part 14 would be on the right side of the page.

In light of the amendments herein and the preceding remarks, the objections to the specification are deemed to have been met. Reconsideration and withdrawal of these objections is respectfully requested.

Claims 23-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 4,534,652 (Stade) in view of United States Patent No. 4,474,473 (Higuchi et al). This rejection is respectfully traversed in light of the following remarks.

Applicants wish to point out that the terms "down-stream" and "intake opening" in their apparatus claims are inextricably intertwined with the structure of the apparatus, and do not represent mere recitations as to how the apparatus is to be utilized. For purposes of illustration, hypothetically reversing the flow of material through the apparatus of Applicants' claims would result in a lack or absence of pressure build-up in the zone defined by housing parts 12, 13 and 14 (see Figure 1). Under hypothetical conditions of reversed material flow (e.g., by feeding material into housing part 14), the zone defined by housing parts 12, 13 and 14 would act as a mixing or conveying zone, rather than as a pressure build-up zone. The zone defined by housing parts 12, 13 and 14 acts as a pressure build-up zone due in part to the combination of material being driven into it from the preceding zones (from housing parts 1, 4, 6, 7 and 8), and the triple lead therein. Hypothetically driving material out of housing parts 14, 13 and 12 (under conditions of reverse flow), and into the degassing zones (e.g., into housing part 8), would not result in the build-up of pressure within housing parts 14, 13 and 12.

Stade discloses a multi-shafted, continuous mixing and kneading apparatus that includes mutually engaging worm elements that rotate in the same sense (abstract). Stade's apparatus is disclosed as including: an inlet opening (16); what effectively is a high pressure zone (1) that is down-stream from inlet opening (16); and what effectively is a degassing zone (2) that is further down-stream from high pressure zone (1). See the abstract; Figure 1; and column 1, line 46 through column 2, line 2 of Stade. The degassing zone (2) of Stade's apparatus is also disclosed as including a further fill opening (17) and an out-gassing outlet opening (18), and an exit position (15) (Figure 1; and column 4, lines 3-40).

It is important to note that due to the configuration of the worm elements of Stade's apparatus, the flow of material therethrough is right to left when viewing Figure 1. As such, the degassing zone (2) of Stade's apparatus is always further downstream from the high pressure zone (1).

In the Office Action of 11 August 2003, it appears to be suggested that the functions of the various ports (e.g., inlet opening (16), further filling opening (17), outgassing outlet (18) and exit position (15)) of Stade's extruder can be interchanged, and the direction of material flow through Stade's extruder can somehow be reversed to arrive at or provide an extruder that includes a degassing zone that is down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone. Applicants respectfully disagree with this suggestion.

For purposes of argument, if the flow of material through Stade's extruder were somehow reversed (perhaps by reversing the rotation of the shafts, and feeding material in through exit position 15), zone (2) would then become a high pressure zone, due to the decrease in barrel diameter in going from zone (2) to zone (1). In addition, zone (1) would not act as a pressure build-up zone, due to the reversed arrangement of the kneading elements (23) and the triple-thread worm elements (3). Under hypothetical conditions of reverse flow, zone (1) of Stade's extruder would act as a conveying zone and perhaps also as a mixing zone, but not as a pressure build-up zone.

In *Ex parte Masham*, the Board stated that "a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus *satisfying the structural limitations of that claimed.*" *Ex parte Masham*, 2 U.S.P.Q.2d 1647 (Bd. Pat. App. & Inter. 1987). (emphasis added). In light of the preceding remarks, the extruder disclosed by Stade does not satisfy the structural limitations of Applicants' claimed apparatus. In affirming the rejection of apparatus claims, the Board in *In re Casey* "considered that the structure provided by the reference *possessed the capabilities requisite to meet the terms of the claims.*" *In re Casey*, 370 F.2d 576, 579 (C.C.P.A. 1967). (emphasis added). With regard to the preceding remarks, the extruder disclosed by Stade does not possess the capabilities requisite to meet the terms of Applicants' claimed apparatus.

The diameter of zone 1 of Stade's apparatus is smaller than that of the diameter of zone 2 thereof. As such, the length-to-diameter ratio of Stade's apparatus is not constant over the length of the apparatus. See Figure 1; column 2, lines 25-29; and column 3, lines 59-67 of Stade.

Higuchi et al disclose a twin-screw co-rotating extruder that is used to prepare a pigment dispersion by means of continuous pigment flushing within the extruder (abstract). The extruder of Higuchi et al is disclosed as including the following sequence of sections (up-stream to down-stream): a feed section (A); a flushing section (B); a dehydrating section (C); an optional after-treating section (D); and a nozzle or outlet section (E). See the abstract; Figure 1; and column 5, lines 13-26 of Higuchi et al. The extruder used by Higuchi et al is disclosed as having an L/D ratio of at least 25 (e.g., 40) (column 7, lines 3-7; and column 8, line 67). However, Higuchi et al do not disclose, teach or suggest a double-shaft extruder according to Applicants' claims which includes a degassing zone that is down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone.

As discussed previously herein, Stade's extruder is disclosed as having a length-to-diameter ratio that is not constant over the length of the extruder (zone 2 has a larger barrel diameter than that of zone 1). Stade teaches away from the use

of an extruder having a length-to-diameter ratio that is constant over the length of the extruder (column 2, lines 58-62). The twin-screw co-rotating extruder of Higuchi et al is disclosed as having a constant length-to-diameter ratio over the length of the extruder. As such, neither Stade nor Higuchi et al provide the requisite motivation that would lead a skilled artisan to combine or otherwise modify their disclosures.

As the Court of Appeals for the Federal Circuit has stated, there are three possible sources for motivation to combine references in a manner that would render claims obvious. These are (1) the nature of the problem to be solved, (2) the teaching of the prior art, and (3) the knowledge of persons of ordinary skill in the art, *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998). The nature of the problem to be solved and the knowledge of persons of ordinary skill in the art are not present here and have not been relied upon in the rejection. As for the teaching of the prior art, the above discussion has established that neither of the patents relied upon in the rejection provide the requisite teaching, and certainly do not provide the motivation or suggestion to combine that is required by Court decisions.

Even if Stade and Higuchi et al were combined, Applicants' claimed apparatus would not result. As discussed previously herein, reversing the flow of material through the extruder of Stade would result in the build-up of pressure in zone (2) and no build-up of pressure in zone (1), i.e., an extruder having a conveying and/or mixing zone (zone 1) that is downstream from a pressure build-up zone (zone 2). As such, the combination of Stade and Higuchi et al would not result in the apparatus of Applicants' claims which includes a degassing zone that is down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone.

But for the impermissible use of hindsight reconstruction, Applicants' claimed apparatus would not result from the combination of Stade and Higuchi et al. "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W.L. Gore & Assoc. v. Garlock, Inc.*,

721 F.2d 1540, 1553 (Fed.Cir.1983). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 1075 (CAFC, 1988).

In light of the preceding remarks, Applicants' claimed apparatus is deemed to be unobvious and patentable over Stade in view of Higuchi et al. Reconsideration and withdrawal of this rejection is respectfully requested.

Applicants note with appreciation the allowance of Claim 34-46 in the Office Action of 11 August 2003.

In light of the amendments herein and the preceding remarks, Applicants' presently pending claims are deemed to define an invention that is unanticipated, unobvious and hence, patentable. Reconsideration of the rejections and allowance of all of the presently pending claims is respectfully requested.

Respectfully submitted,

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APPENDIX

Replacement Drawing Figures 1, and 1a-1h (now 2-9).